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ABSTRACT

This module is intended to enable secondary school physical education teachers to recognize: (1) that inaccurate assumptions about biological differences have been used to justify different opportunities for boys and girls in physical education; (2) some common misconceptions about girls and women; (3) that tendencies to generalize about physical performance differences form the basis for sex-role stereotyping; and (4) that there are ways to conduct physical education programs which consider performance differences yet do not discriminate against either sex. A discussion is presented on the biological differences between girls and boys and the faulty assumptions that are made as the result of stereotyping. Structural, physiological, and performance differences between girls and boys are summarized. Errors arising from generalizations about differences between the sexes are pointed out. Restrictive attitudes toward physical activities for girls are considered in the light of myths about the physical attributes of females. Suggestions are made for what teachers might do to ensure equal treatment of boys and girls. These include curriculum choices, instruction styles, and methods of evaluating students. References for further reading are included. (JD)

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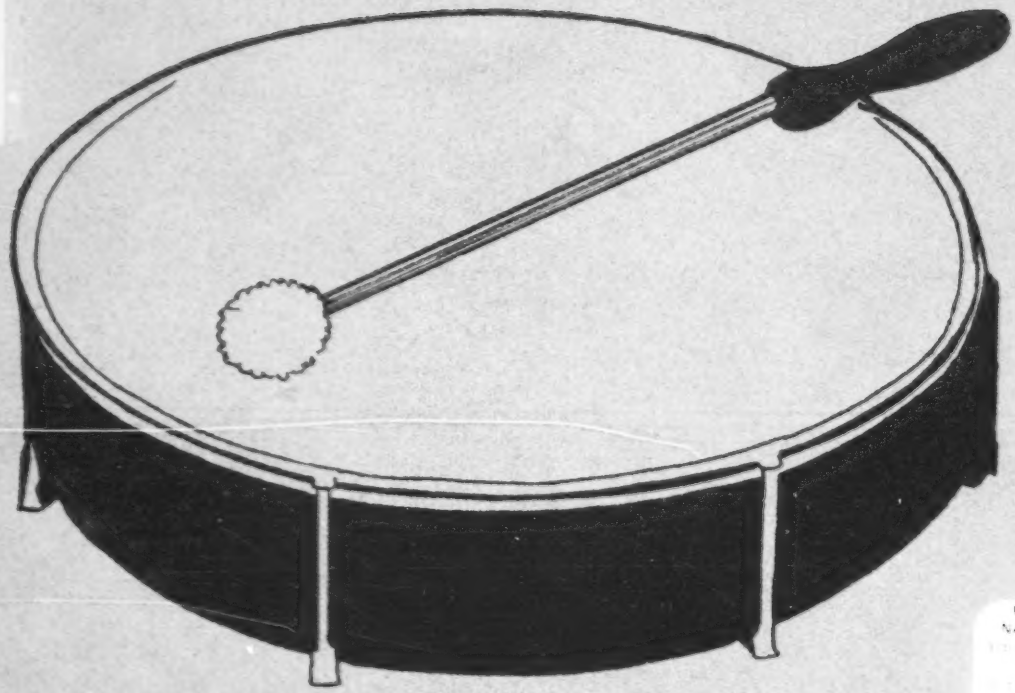
Biological Sex Differences



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SP 011 116

PHYSICAL EDUCATORS FOR EQUITY

MODULE 3

BIOLOGICAL SEX DIFFERENCES

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MODULE 3

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Directions for module use: Read the module, following the instructions given throughout. At any time you may refer to preceding pages.

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The services of Agnes Chrietzberg, assessment specialist, were invaluable in all phases of the project, from conception to completion. Mary Neikirk, curriculum specialist, spearheaded the preparation of all modules and contributed enormously to the research and writing. Mary Dee Leslie, validation coordinator, assisted with many aspects of module development and validation. Gratitude is expressed to Peggy Stanaland, Harold Holmes, Geraldine Polvino, Dorothy Kirkpatrick, and Richard Lee Gentry for their assistance in module development and/or field testing. Carrie Haag was indispensable in her assistance with module development, cover designs, and manuscript preparation. Persons who served as validation subjects and those interviewed for module content selection deserve a particular word of thanks. Nancy Ferrell, illustrator; Darlene Ogden, instructional materials technologist; and Theresa Snow, graphic artist, offered specialized skills essential to the preparation of the materials. Linda Bain, Carol Stamm, and Marilyn LaPlante merit recognition for sharing their expertise as consultants in the areas of curriculum and assessment. Appreciation is extended to Carolyn Siegel, Reda Wolfinbarger, and Linda Holt for typing various drafts of the modules. For general assistance with a variety of assignments related to the project, Kristine Freck, Mary K. Osborne, and Becky Baker are acknowledged.

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To all those who have supported this effort in many ways and especially the professionals who have worked toward a better understanding of the physical education needs of both women and men, special thanks and respect.

INTRODUCTION

This module is one of seven which are to be used as a self-study program. The modules are designed to promote the elimination of sex-role stereotyping and sex discrimination in secondary school physical education classes.

Each module contains written materials, illustrations, and learning exercises with directions for their use. At the end of each module, references are cited and resources for further study are provided. Completing each module will take a maximum of one hour, except for Module 1, which can be finished in less than one-half hour.

The content of the modules is as follows:

Module 1: Introduction to stereotyping and discrimination

Module 2: Sex-role stereotyping and its effects

Module 3: Biological sex differences

Module 4: Title IX

Module 5: Curriculum development

Module 6: Teacher behavior

Module 7: Student performance evaluation

In these modules, material which is quoted or drawn from a specific source is indicated by a reference in the text, such as (5) or (3, p. 113), corresponding to the numbered list of references at the end of each module.

Note: Throughout the modules, female high school students are referred to as girls and male high school students as boys. This is consistent with the designations used by professional organizations and associations which govern and promote various sports. However, it is recognized that in many parts of the country these students are referred to as women and men. Readers are encouraged to substitute the appropriate terms as necessary.

OBJECTIVES

Upon completion of this module you will be able to:

1. Recognize that inaccurate assumptions about biological differences have been used to justify different opportunities for boys and girls in physical education.
2. Recognize that tendencies to generalize about physical and performance differences form the basis for sex-role stereotyping.
3. Recognize some common misconceptions about girls and women.
4. Recognize that there are ways to conduct physical education programs which consider performance differences yet do not discriminate against girls or boys.

BIOLOGICAL DIFFERENCES BETWEEN BOYS AND GIRLS

BIOLOGY AND EQUITY: THE PROBLEM OF FAULTY ASSUMPTIONS

The biological basis of differences between the sexes has been used as a reason for justifying different physical education programs for girls and boys.

ASSUMPTION:

> Biological differences between men and women are universal and predetermined. Therefore, different opportunities, treatment, and social rewards for boys and girls are justified in physical education.

Below is information to help you evaluate the accuracy and effect of this assumption when it is used as a guide for practices in physical education.

Although men and women differ in biological traits when average scores are observed, the differences are not universal.* For example:

1. Any woman and man chosen at random may not differ in the expected direction.
2. Some women may be taller than some men. Some men may have more body fat than some women.

The primary sex difference is chromosomal. Two sex chromosomes account for the sex differences, the XY for the male and the XX for the female. The difference amounts to 2 percent of the total genetic material. The other forty-four (non-sex) chromosomes do not differ systematically between males and females. Many traits are common to both women and men (16, p. 99).

The phrase <u>biological differences</u>** has been misused to imply sex differences that are intrinsic, inflexible, and preprogrammed.

Genetic and environmental components interact to produce a biological effect. The extent to which genetic factors control biological differences is unknown. It <u>is</u> known, however, that environmental factors, especially social ones, are extremely powerful agents in producing biological sex differences (18, p. 120).

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*Uni-ver-sal (adj.): existing or operative everywhere or under all conditions.

**Bi-o-log-i-cal (adj.): related to the branch of knowledge that deals with living organisms.

Even when the role of genetic factors seems established beyond question, as in sex differences in some physical characteristics, recent research has shown that environmental influences can be extensive. For example, in comparing the arm strength of women and men, several researchers have concluded that much of the difference is the result of society's encouragement of the average man to be more active than the average woman. These researchers feel that "the social influences are so great that inherent physiological differences in strength cannot yet be estimated" (5, p. 173).

Because of the great variation within the sexes, dividing students by sex and providing opportunities on that basis limit the possibilities for individual development. For many biological characteristics, whether physiological, anatomical, or behavioral, there is considerable overlapping of traits between the sexes.

If people believe that certain characteristics are innate, they tend to act in accordance with that belief. If women are viewed as submissive, they will be less assertive. If women are believed to be weak, they will avoid developing strength.

STRUCTURAL AND PHYSIOLOGICAL DIFFERENCES AND PERFORMANCE DIFFERENCES

There are a number of structural differences between males and females. Sex differences exist for almost every physical attribute, and they increase with maturity.

MALES AND FEMALES DIFFER IN MANY PHYSICAL ATTRIBUTES

Physical Attributes	Measures That Reflect Differences
Dimensions of body parts	Length, width, depth, and circumference of body parts
Composition of body	Percent of total body composed of fat, muscle, or bone
Body proportions	Ratio of body measures: hip width to shoulder width trunk length to standing height body weight to height
Contour of body structure	Flare of pelvis Arch of pubis
Size of vital organs	Capacity of heart and lungs

Structural and physiological differences between men and women are associated with many of the differences observed in motor performance. Below are some examples showing why men have a performance advantage when the motor task requires strength, speed, or cardiovascular endurance.

STRUCTURAL AND PHYSIOLOGICAL CHARACTERISTICS ASSOCIATED WITH THE MOTOR-PERFORMANCE ADVANTAGES OF MEN*

When activities require strength, speed, or power, men have a performance advantage because of:

1. Greater ratio of strength to weight.
2. Greater muscle mass (40 percent muscle as opposed to 23 percent muscle for women).
3. Greater tolerance for anaerobic work.

When activities require cardiovascular endurance and maximal work effort, men have a performance advantage because of:

1. Greater hemoglobin and red blood cell count.
2. More available oxygen in arterial blood, resulting in less cardiac stress.
3. Greater heart and lung size; greater blood volume.
4. Higher aerobic capacity (greater maximum oxygen uptake).**
5. Less fatigue and cardiac stress when the workload is submaximal, due to greater ability to summon anaerobic reserves.

---

*Serious questions have been raised as to whether the differences are true biological differences or the result of societal/environmental constraints.

**Not every woman has less capacity than every man: "Quite the contrary--the evidence shows clearly that there are factors other than sex which determine the maximal aerobic capacity of an individual" (12, p. 376).

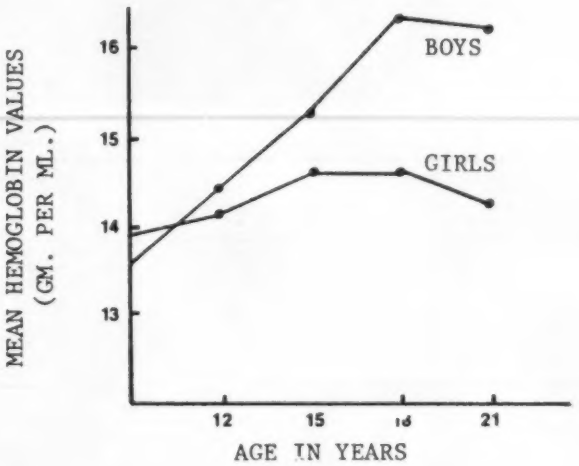
Physiological and performance differences between boys and girls are rather small before puberty.* Adolescence is marked by a rapid growth spurt for both boys and girls and by a number of changes in body structure and function. Physiological differences between boys and girls increase with maturity and noticeably influence motor performance.

The figures below show that the rapid physiological changes which occur during the adolescent growth spurt parallel gains in performance.

Figure 1. Mean Hemoglobin Values of Boys and Girls (9, p. 200).

During adolescence, boys increase in hemoglobin and red blood cell count.

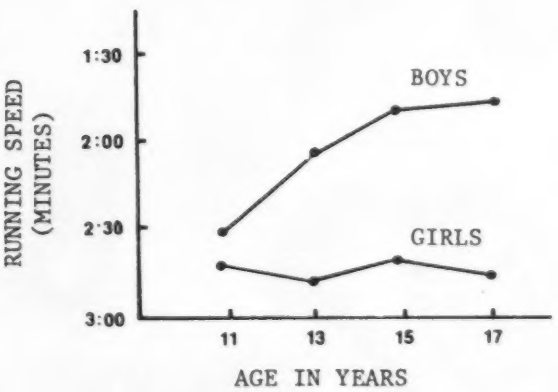
These and other factors increase the oxygen-carrying capacity of the blood.



Thus . . .

Figure 2. Time of 600-Yard Run for Boys and Girls; AAHPER Fitness Norms, 50th Percentile (1, pp. 43, 51).

On the average, boys perform better than girls in tasks requiring cardiovascular endurance.

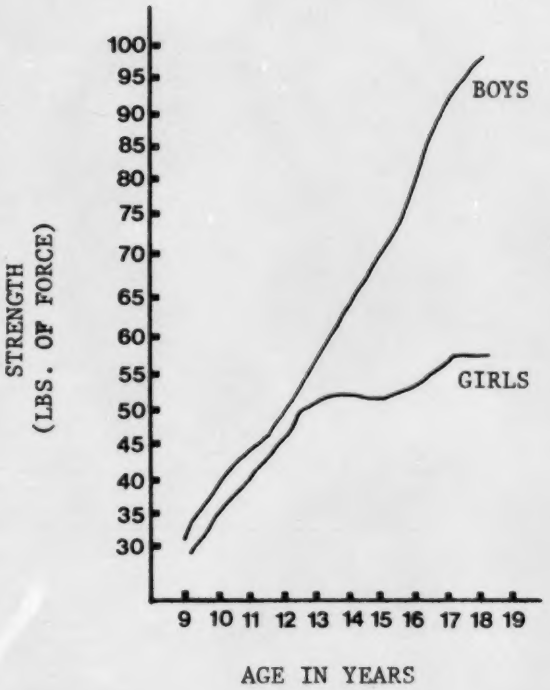


*Puberty (noun): sexual maturity--on the average, about 12 years of age for girls and about 14 years of age for boys.

There is not much difference between preadolescent boys and girls in strength.

During adolescence, boys gain rapidly in muscle mass and in strength.

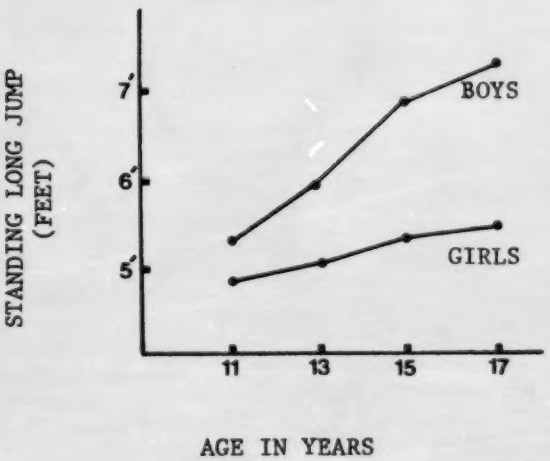
Figure 3. Strength Measures of Boys and Girls (3, p. 91).



Thus . . .

Boys increase considerably in leg power, which requires both strength and speed, as indicated by their scores on the standing long jump.

Figure 4. Distance of Standing Long Jump for Boys and Girls; AAHPER Youth Fitness Norms, 50th Percentile (1, pp. 41, 49).



The gains in performance that boys experience during adolescence occur over a longer period of time and are of greater intensity than the gains made by girls during their growth spurt.

Most girls have virtually completed the adolescent growth spurt by menarche (the onset of menstruation). Menarche normally occurs between the ages of 9 and 16. By contrast, at ages 14 or 15, boys are at the peak of their growth spurt and may grow at the rate of 4 to 5 inches a year.

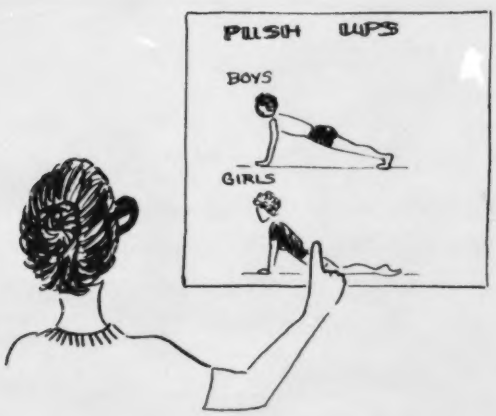
The fact that boys and girls differ in physiological development, and thus in their performance capacity, does not imply that participation in physical activity is less beneficial for girls than for boys. The assumption that boys gain more than girls from physical activity should not be used as a basis for inequity in physical education.

GENERALIZATIONS ABOUT DIFFERENCES BETWEEN GIRLS AND BOYS

ERRORS IN GENERALIZATIONS

In the previous section, some of the structural and physiological characteristics that influence the divergence in motor performance of girls and boys were identified. Generalizations based on differences between boys and girls can be misleading.

People tend to generalize so that information can be handled more efficiently. People also have a tendency to use generalizations about groups to make decisions about individuals. A few individuals may fit some generalized characteristics of an entire group; however, generalizations provide limited insight into the actual characteristics of individuals.



For example, in one class boys were instructed to do full-length push-ups; girls were instructed to do knee push-ups. The reasoning was that boys are stronger than girls. In reality, there were some girls who would have benefited more from full-length push-ups and some boys who needed to start with knee push-ups.

The tendency to generalize forms the basis for sex-role stereotyping. Generalizations provide a limited amount of information about a group. The following are a few generalizations that have been made from a comparison of boys and girls:

1. Boys are taller than girls.
2. Boys run faster than girls.
3. Boys jump farther than girls.

When we read these statements, we are not sure if what is meant is that:

1. Nearly all boys are taller, faster, and more powerful than nearly all girls.
2. Most boys (more than half) are taller, faster, and more powerful than most girls.
3. The average boy is taller, faster, and more powerful than the average girl.

The average 15-year-old boy is taller than the average 15-year-old girl--by about 2 inches. However, that generalization provides little information about the actual difference between boys and girls.

The normal curves in the figure below provide more complete information. Figure 5 illustrates the distribution in height of 15-year-old girls and boys. The bar graph shows the range in height of girls and boys who are short, average, and tall. For example, a girl who is 5'8" is considered tall; a boy who is 5'8" falls more toward the average category.

Figure 5. Height Curves of Short, Average, and Tall Ranges in the Heights of 15-Year-Old Boys and Girls (19, pp. 880, 881).

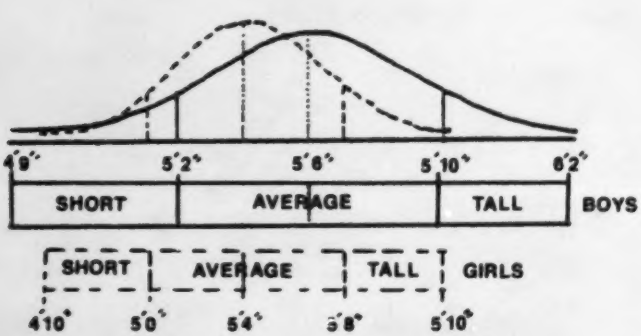


Figure 5 shows that:

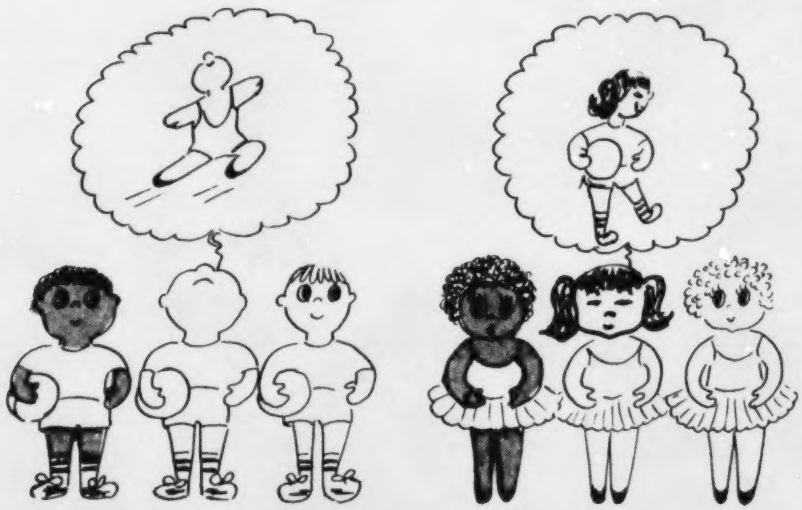
1. The average girl is 5'4"; she is taller than a number of boys.
2. The shortest girl is 4'10"; she is taller than the shortest boy.
3. There is a great amount of overlap in the height curves of 15-year-old boys and girls.

Teachers should not lose sight of the fact that generalizations provide limited information about differences between groups. Even in performance tasks, there will be overlapping in scores between sexes, and some girls will be expected to score better than some boys.

It is not unusual for generalizations to be carried a step further and to become statements which are sex-role stereotyped. For example, such statements might read:

1. Boys are tall, strong, and fast.
2. Girls are short, weak, and slow.

IT IS ILLOGICAL TO PUT ALL BOYS IN ONE CATEGORY AND ALL GIRLS IN ANOTHER . . .



. . . BUT THAT IS WHAT HAPPENS WHEN STUDENTS ARE STEREOTYPED BY SEX.

Sex-role stereotyping in physical education is based on the assumption that boys have certain traits, interests, and performance characteristics and girls have others. Programs and practices in the past have operated on that assumption and have perpetuated differences in opportunities made available to both sexes.

STEREOTYPING VERSUS INDIVIDUALIZING

Measures of central tendency (average scores, middle scores, most common scores) are frequently used to make generalizations about groups. A better way to understand "girls in general" or "boys in general" is to look at the range (or spread) of differences within a sex.

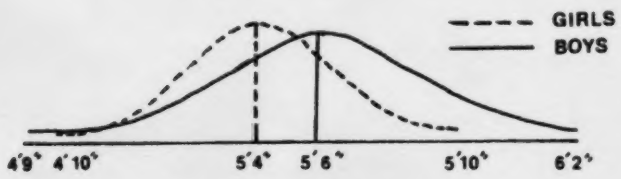
For example, the range in height for 15-year-old boys is quite great. There is a difference of 17 inches (1'5") between the tallest and shortest boy.

1. The average 15-year-old boy is . . . 5'6".
2. The tallest 15-year-old boy is . . . 6'2".
3. The shortest 15-year-old boy is . . . 4'9".

The range in height indicates that individual differences within a sex can be quite great. Curves, such as the one shown in Figure 5, depict the spread or variance of individuals within a group.

Since differences within a sex are usually quite great, it is normally expected that the range of scores of boys and girls will overlap. The superimposed height curves for boys and girls presented below show that there is considerable overlapping in height.

Figure 6. Superimposed Height Curves of 15-Year-Old Boys and Girls.



Although overlapping is accepted as a normal occurrence, the social expectation is that boys will be taller than girls. That expectation seems somewhat strange when

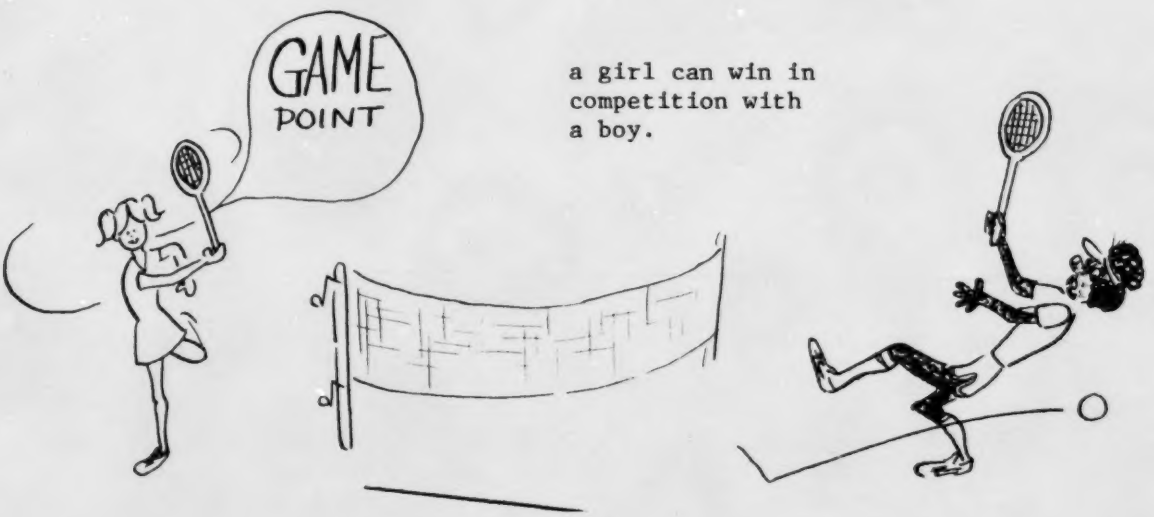
some wives are taller than their husbands,

and

short boys dance with tall girls.

This type of thinking permeates all aspects of education, including physical education. People make generalizations about skill and performance just as they do about physical characteristics.

For instance, boys are expected to be more skillful and to perform better than girls in physical activities. The expectation seems somewhat out of place when



a girl can win in competition with a boy.

Generalizations which encourage sex-role stereotyping and which encourage comparisons between boys and girls should be avoided. Group differences in performance are not valid predictors for individual members of either sex. Therefore, individuals should be free of sex-role restraints and comparisons so that they can develop whatever talents and capacities they have.

INDIVIDUALS WHO HAVE BEEN FREE TO DEVELOP THEIR TALENTS

Rhonda Brady - First place, 100-meter hurdles, USSR/U.S. Junior Track Meet

Rhonda started running hurdles with the boys in junior high school: "I didn't feel uncomfortable running with the guys; I didn't have anything to lose" (21, p. 9).

Kathy Mills - World record, 5000-meter run (approximately 3.1 miles), time: 15:35.52

Kathy took up running in high school because "I was too small to play basketball" (20, p. 9).

Brenda Gamblin - Softball, a "magic" third-base player

"When I was growing up . . . my mother was a pitcher. Just watching her, I knew I wanted to play ball" (17, p. 62).

Maren Seidler - Seven-time National Shot Put Champion

Maren was introduced to the shot by her father: "I've never felt any particular burden on myself because I was a shot-putter. I knew it didn't have such a great image, but it didn't bother me" (2, p. 58).

Edward Villella - Proclaimed America's greatest male ballet dancer

Edward, whose father was a Long Island trucker and whose mother valued dance, began dancing at age nine. He hopes he has reached the minds of parents who cannot connect dance to reality (15, p. 103).

Louise Ritter - Three-time Texas State High School Jump Champion

"I've always been real tall," states Louise, who stands 5'11". Louise has cleared the bar at 6'1½" (27, p. 42).

These accomplishments would not have been possible if someone--parents, teachers or coaches--had not been more concerned for the individual than for maintaining sex-role stereotypes.

SUMMARY

Many problems of sex discrimination related to performance differences would be resolved if teachers would treat boys and girls as individuals. The differential treatment of boys and girls has been based on the belief that males and females are absolutely different. The argument has been that each sex has:

1. A different genetic base.
2. A different physical structure.
3. A different functional capacity.
4. Different performance abilities.

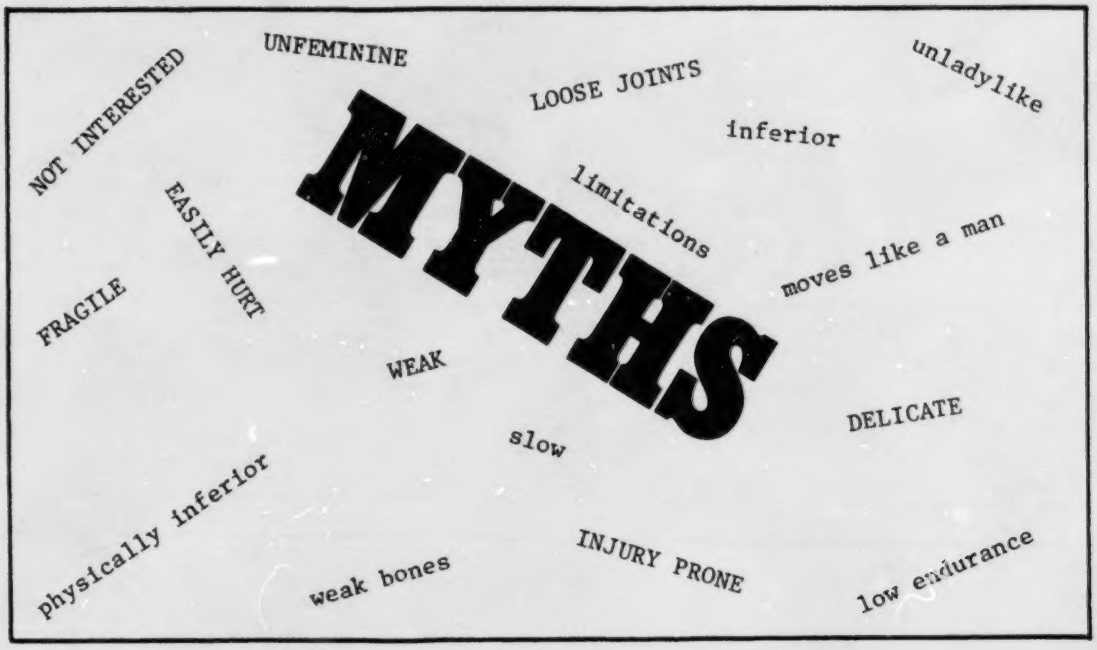
Tendencies to generalize based on these criteria form a basis for sex-role stereotyping.

It would be better for students if teachers could look at the ways in which boys and girls are alike, rather than at the ways in which they differ. Teachers should recognize that:

1. Average differences between boys and girls are usually very small.
2. There is great variation within each sex.
3. The overlapping of abilities between sexes is quite great.
4. Students have individual needs.
5. An individual's sex should not limit opportunities for development.

Consideration for individual
differences expands opportunities.

MYTHS ABOUT GIRLS AND WOMEN



Myths about the physical nature of girls and women have been repeated so often that many people accept them as truth. Myths have been perpetuated by educators, doctors, parents, and promoters of organized sports whose authority and opinions have been unquestioned. Their opinions are often based on social customs and stereotypes rather than upon factual evidence. When "facts" are cited to support myths, the facts have been exaggerated or distorted to support a particular position.

Below and on the next pages are myths about the physical nature of girls and women. These particular myths have been selected because they have been used as arguments for denying or limiting the opportunities of girls and women for participation in physical activities and sports. The statements which follow the myths provide information explaining the fallacy.

MYTH 1 Vigorous, assertive physical activity tends to masculinize girls and women.

FACTS Exercise does not build muscle beyond genetic and hormonal capacities. Hormonal secretions vary greatly among individuals. Variance in muscle development within and between the sexes is tremendous. There is no evidence that exercise increases hormonal secretions that masculinize the female body (22, p. 29).

MYTH 2 Women's bones are weak and fragile.

FACTS Bone strength depends upon nutrition, disease, function, hormones, and heredity. It appears that the amount and quality of physical activity has more influence on density and strength of bones than does sex (7, p. 30; 14, p. 24).

Osteoporosis, the reduction of bone density and strength, is more prevalent among women (especially older women) than men. One reason, suggested by Harris, is that "growing girls are not generally socialized to participate in vigorous exercise during the growing years when bones are developing and growing." Exercise stress helps to develop stronger, denser bones (11, p. 45).

An active female will have the same type of strong bones as her male counterpart.

MYTH 3 Jumping, jarring, or weight-lifting activities cause compression in the pelvic area which can cause injury to a woman's reproductive system. Such activities should be restricted.

According to McCloy, quoting Paramore, "the uterus is surrounded with structures of practically the same specific gravity as itself, and . . . it normally has no air space around it. Thus it floats free in a miniature pool of pelvic viscera, just as it might, if detached, float in a jar filled to the brim with water. Such a body suffers only such shock as occurs within itself and does not fly violently through the fluid when shaken" (9, p. 22).

"Injuries to the female genital organs are rare in sports" (24, p. 44).

MYTH 4 A blow to the breast may cause cancer.

There is no evidence that repeated trauma to the breast can cause cancer (22, p. 22).

MYTH 5 Women should refrain from or limit physical activity during menstruation; activity can be physiologically harmful.

FACTS A considerable amount of research has established that this view is unjustified. Physical activity, conditioning, and competition do not affect menarche (the onset of menstruation) or the menstrual function under normal conditions of participation.

Observations reveal that women are able to perform at high levels of skill and efficiency during all phases of the menstrual cycle (11, p. 44).

Within the last decade, new menstrual-response patterns have been observed in women who have trained under strenuous conditions for heavy competition and ultra-endurance athletics (11, pp. 44-45). Changes in response seem to be temporary and cannot be labeled good or bad. Long-term detrimental effects of strenuous exercise have not been documented.

MYTH 6 Women do not benefit from physical training in the same way as men do.

FACTS "Women respond to the same training stimuli as men with similar results--lower resting and submaximal heart rates, lower stroke volumes, an increase in total hemoglobin, a larger heart volume, etc." (6, p. 36).

Men may experience greater gains than women from similar training programs, but this is partly due to greater androgen levels (26, p. 39).

"Changes in body composition due to training are not sex specific" (26, p. 39).

". . . there is little reason to advocate different training or conditioning programs on the basis of sex since their [males' and females'] needs are essentially identical" (26, p. 39).

". . . there is no evidence to suggest that men respond to vigorous exercise any differently than women" (10, p. 52).

MYTH 7 Strenuous exercise may stretch breast tissue and cause sagging of the breasts.

FACTS The breasts are supported by their internal structure and not by ligaments or bands which might be stretched by exercise. Large, heavy breasts always sag and for comfort can be supported by a bra (25, pp. 127-128).

MYTH 8 Exercise contributes to dysmenorrhea (painful or difficult menstruation).

FACTS A likely cause of dysmenorrhea is ischemia (lack of blood flow) to the reproductive organs. Muscular exercise tends to increase circulation and is beneficial in relieving pain and also in preventing dysmenorrhea. Exercise can improve regulation of the menstrual cycle (4, p. 45; 13, p. 48; 23, p. 125; 14, p. 215).

"Jogging or vigorous walking generally helps to alleviate cramps. It does not worsen cramps or prolong the bleeding" (25, p. 119).

MYTH 9 Short runs are better for women than long runs because of women's lack of stamina.

FACTS One of the great ironies of sports is that women have been restricted to sprint events that require speed and strength. The longest race for women in the 1976 Olympics was 1,500 meters, less than 1 mile (25, p. 39).

Women have shown that they can develop remarkable endurance. The efficient use of adipose tissue, which has a high energy yield, combined with women's low muscle mass (high muscle mass acts as deadweight during endurance events), seems to account for some of the unbelievable records women are setting (12, pp. 91-92).

MYTH 10 Girls and women should not participate in contact sports, because their physical characteristics are not suited for such participation.

FACTS The Committee on the Medical Aspects of Sports endorses the concept of contact sports for girls, on girls' teams, when girls are provided with the same safeguards that apply to boys' contact-sports programs--namely, medical examinations, adequate conditioning, proper coaching, capable officiating, and proper equipment and facilities (4, p. 47).

". . . there is <u>no physiological reason</u> to restrict women from such programs and many reasons to endorse and encourage such involvement" (4, p. 46).

MYTH 11 The structure of the hip prevents women from running efficiently.

FACTS "When running, the body balances on each foot. The hip must naturally swing to keep the center of gravity over the foot. Since women have a slightly wider distance between their hip joints than men . . . their gait may be fractionally less efficient. . . . It is not a style fault, but a natural motion. The style of men and women distance runners moving at the same pace is remarkably similar" (25, p. 21).

RESTRICTIVE ATTITUDES ASSOCIATED WITH MYTHS

The myths discussed above reflect beliefs about girls and women that may be described in the following two attitudinal categories. In both attitudinal categories, girls are presumed to be unsuited for physical activity.

Chivalrous attitudes

Girls and women are described as fragile, naive, and childlike.

Girls and women need to be protected, restricted, guided, and petted.

Girls and women must conform to ladylike standards and participate in those activities which will reinforce their feminine qualities.

Authoritative attitudes

Girls and women are described as inferior and inherently limited.

Girls and women need to be under the direction of an authority figure.

Girls and women deserve second consideration, because they cannot benefit to the same degree as boys or men, given the same opportunity, can.

Girls and women should serve and support rather than be central participants.

The traditional policies and stereotyped concepts of girls and women that are used to restrict active participation are necessary to preserve social roles.

Educators should be aware that both authoritative and chivalrous attitudes form an undercurrent which restricts and limits the development of girls through physical activity.

BIOLOGICAL FACTORS AND EQUAL TREATMENT

Because of performance differences between boys and girls, situations often exist that favor boys in certain aspects of curriculum, instruction, and evaluation. Below are suggestions for what teachers might do to ensure the equal treatment of girls and boys. Modules 5, 6, and 7 provide more complete information about curriculum, instruction, and evaluation.

CURRICULUM CHOICES

Select a balanced slate of activities:*

1. Some activities should require strength, speed, or power.
2. Some should require quickness, agility, or precision.
3. Some should require rhythm, timing, or pace.
4. Some should require control, form, exactness, or patience.

INSTRUCTION STYLES

The teaching styles of physical educators can be categorized according to one of the following:

Style A

An emphasis on motor-skills acquisition.

An emphasis on various movement forms and motor activities.

Opportunities provided for individual practice.

Instruction that includes error correction, visual materials, and demonstrations.

Style B

An emphasis on competition.

An approach in which sports skills form the core of class activities.

An approach in which game situations or free play provide the medium for increasing fitness, learning sports techniques, and learning strategy.

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*A broad selection assures that people of different body types or different structural and physiological potentials can succeed to a degree that will encourage optimal development--physically, psychologically, and socially.

STUDENTS WHO BENEFIT MOST FROM
A COMPETITIVE TEAM-SPORTS
PROGRAM

1. Are bigger in stature.
2. Are more aggressive and dominant.
3. Have had opportunities to gain the skills necessary for competition.
4. Are stronger.
5. Have the most status among their peers.

STUDENTS WHO BENEFIT LEAST FROM
A COMPETITIVE TEAM-SPORTS
PROGRAM

1. Are smaller in stature.
2. Have less strength and power.
3. Are shy, reserved, and less assertive.
4. Have not had opportunities to learn fundamental sports skills or to participate in competitive sports.
5. Prefer forms of movement that are intrinsically more motivating.
6. Do not prefer competitive sports.

When the instructional orientation is centered on competitive team sports, it may favor the participation of boys over girls, because the girls would tend to be concentrated more heavily in the group that benefits least from the program as described. Furthermore, some boys would also be in this group. When the playing of competitive team sports forms the core of a physical education program, a number of students will be deprived of the benefits that should come to participants in physical education activities.

EVALUATION TECHNIQUES

Physical education teachers must consider whether separate standards of performance are necessary for girls and boys. If one sex has structural and physiological characteristics which provide a performance advantage, then standards should be established by sex.

If separate standards are established for girls, teachers should be sure that the standards are not too low. One of the serious problems in education has been that expectations for girls have not been high. Girls have not been encouraged to develop their interests; they have not been motivated to achieve and to try hard. Low levels of performance and fitness have been accepted for girls because people have assumed that females:

1. Are physically frail and weak.
2. Have natural physical limitations.
3. Are not serious enough about physical education.
4. Need to be protected from the possibility of injury.
5. Are better off socially for not participating.
6. Don't need to be physically competent.

CONCLUSION

In light of the information presented in this module, a physical educator should realize that the benefits that come to any person from participation in physical education are not tied to inherent, sex-related structural or functional characteristics. That is, structural and functional differences do not define the benefits that can be derived from participation by boys and girls in physical education. Rather, limitations are imposed by social expectations and standards.

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